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## New and Noteworthy Northwestern Plants.--IV

BY C. V. PIPER

### ***Amelanchier cuneata* sp. nov.**

Shrub about 2 meters high with dull grayish bark even on the branchlets; youngest twigs with a somewhat appressed white pubescence: leaves elliptic to obovate, few-toothed toward the obtuse apex, mostly attenuate to the more or less cuneate base, sparsely pubescent on each side when young, pale green, rather thin, 2-3 cm. long; petioles slender, a little shorter than the blades; stipules setaceous: racemes 10-20-flowered, the pedicels about 1 cm. long; calyx somewhat pubescent, the acute triangular-lanceolate lobes as long as the tube: petals oblanceolate, obtuse, 12 mm. long: stamens 20: fruit not seen.

In sage-brush land, Ellensburg, Wash., *C. V. Piper*, no. 2173, collected May 20, 1897.

Nearest *A. alnifolia* Nuttall, but easily distinguished by the pale twigs and cuneate leaves.

### ***Potentilla gracilipes* sp. nov.**

Perennial, tufted: caudex stout, vertical, simple or branched above, 8-10 cm. long, 1 cm. in diameter, more or less covered with old petioles or pitted-scarred where they have fallen off: leaves densely imbricated at base, oblong in outline, pinnate of 9-11 leaflets or divisions, equally silvery sericeous on both sides, 4-6 cm. long; leaflets sessile, broadly cuneate, the lowermost entire, the other 3-cleft at apex, the lobes more or less unequal; petioles flattened, mostly concealed: peduncles few, 1-flowered, slender, pubescent, erect, 6-8 cm. high, bearing two bracts above, these ovate, sessile, acutish, simple or 3-lobed: flower 2-2.5 cm. in diameter: hypanthium rotate, appressed, pubescent, the calyx-lobes broadly ovate, acutish, 6-7 mm. long, the bractlets elliptic, much smaller: petals orbicular, short-clawed, bright yellow, 1 cm. long, well exceeding the calyx-lobes: stamens 50-60, the filaments glabrous, but with some villous pubescence at and near their bases: carpels numerous, densely silvery villous: styles terminal, as long as the carpel, more or less divergent: mature akenes not seen.

Face of north cliffs, Blue Mts., Oregon, at the head of Anthony's Creek, altitude about 8000 ft., in July, 1899, *W. C. Cusick*,

no. 2246. Nearest *P. Breweri* Watson, but easily distinguished by its 1-flowered peduncles and villous carpels. Apparently it is the only North American species with pinnate leaves and strictly one-flowered peduncles.

***Saxifraga Columbiana* sp. nov.**

Scapes rather stout, terete, erect, glandular, usually solitary from the caudex: leaves all radical, ovate to elliptic-oblong, obtuse, entire, the blades 2–6 cm. long, gradually narrowed into a somewhat shorter petiole: inflorescence a branched narrowly pyramidal cyme, the cymules rather dense: bracts lanceolate or linear: flowers 5–6 mm. in diameter on stout pedicels: calyx-lobes triangular ovate, obtuse, at length reflexed: petals whitish, elliptic or oblong, 1-nerved, slightly narrowed at base, shorter than the calyx lobes: filaments subulate, about equaling the petals: anthers pale yellow: carpels separate, divergent at apex.

Nearest *Saxifraga plantaginea* Small, which is a larger plant in every way. Both these species differ from others of the *integrifolia* group in that the petals are shorter than the calyx lobes. In the species here described the petals are very different in shape and size from those of *S. plantaginea*.

The following specimens have been examined:

WASHINGTON: Near Fort Colville, *Lyall* in 1861; "upper Oregon," *Geyer*, no. 625; Pullman, *Piper*, no 1508 (type).

IDAHO: Near Lewiston, *Sandberg*, *MacDougal* and *Heller*, no. 73, April 30, 1892; Clearwater River, *Spalding*.

OREGON: Union Co., *Cusick* in 1879.

***Saxifraga apetala* sp. nov.**

Scapes stout, terete, erect, solitary, glandular pubescent, 1–2 dm. tall: leaves all radical, oval, oblong or ovate, obtuse, entire or obscurely denticulate, glabrous except the ciliate margin, the blade 1–3 cm. long, narrowed into a broadish petiole a trifle shorter: inflorescence dense, 1–2 cm. long: flowers very short-petioled, green: calyx-lobes broadly ovate or suborbicular, obtuse, erect, 2 mm. in length, the tube twice as long: petals wanting: stamens ten, the anthers pale yellow on subulate filaments nearly as long as the calyx-lobes: carpels disciform when young, the margin crenulate: mature fruit not seen.

The type is *G. R. Vasey's* no. 358, collected somewhere in Washington in 1889; the same plant has been found by *Whited* in

the Kittitas Mts., twenty miles north of Ellensburg. The species is one of the *S. integrifolia* group and is easily distinguished by its apetalous flowers and long calyx-tube.

***Saxifraga Idahoensis* sp. nov.**

Stems slender, erect, terete, glandular, 2–3 dm. high, usually several from a stout caudex: leaves all radical, the blades ovate, obtuse, coarsely dentate, 2–6 cm. long, abruptly contracted into a broad flat petiole as long as the blade, glabrous or with a few rufescent hairs on the margin and lower side: inflorescence a much-branched cyme, the branches assurgent: flowers numerous, 3 mm. in diameter, on slender strongly divaricate pedicels: bracts lanceolate or subulate: calyx-lobes ovate, obtuse, free nearly to the base, sharply reflexed even in early anthesis: petals white, orbicular, scarcely clawed, mostly 3-nerved toward the apex, not exceeding the calyx-lobes: filaments subulate, persistent, at length exceeding the petals: anthers pinkish: carpels free from each other, divergent above: the style short and stout.

All the specimens seen are from western Idaho.

“Clearwater,” *Rev. Spalding*.

Island in the Clearwater above Lewiston, *Sandberg, McDougal* and *Heller*, no. 93, May 2, 1892.

Kendrick, *Henderson*, no. 2672, April 21, 1894, and no. 4588, April 26, 1897 [type].

Related to *S. occidentalis* Watson and *S. reflexa* Hook. Its nearly glabrous leaves, much branched inflorescence and small flowers easily distinguish it. Abnormalities in the structure of the flowers are of frequent occurrence.

***Townsendia alpigena* sp. nov.**

Perennial, caespitose from a usually multicapital caudex, 2–4 cm. high: root stout, vertical: leaves numerous, clustered, spatulate, acutish, thickened at the margin, appressed strigulose when young, more or less glabrate at maturity, 1–2 cm. long: peduncles one or two bracted, 1 cm. high, hirtellous: heads solitary on the peduncles, 1–1.5 cm. in diameter, the involucre campanulate, of about three ranks of well-imbricated scales, these oblong, acute, scarious-margined, more or less pilose on the back, sometimes pink-tinged: rays 12–18, dark blue, linear, acute, 1 cm. long: pappus of the disk-flowers bright white, scabrous, multisetose, as long as the akene, that of the ray-flowers similar, but a trifle shorter: akenes flattened, those of the disk usually glabrous, ex-

cept at the very base, those of the rays more hairy ; hairs soft, as long as the width of the akene, many of them bidentate at apex, the teeth spreading or recurved.

Wallowa Mts., northeastern Oregon, 7000–8000 feet altitude, *W. C. Cusick*, no. 2294, collected July 31, 1899. The species is apparently nearest to *T. Arizonica* Gray.

*ERIGERON CHRYSOPSIDIS* Gray, Syn. Fl. 1: 210. 1884

*Erigeron ochroleucus hirtellus* Gray, Proc. Am. Acad. 16: 90. 1880.

The type sheet of this species contains the four following specimens from which the description in the Synoptical Flora was drawn up, namely :

“Mts. Oregon, Cusick, 1877.” “Interior of Oregon, Nevins, 1877.” “In stiff clay on mountain slopes, Rev. R. D. Nevins, 1877.” “Stony hills, John Day's Valley, E. Oregon, May, 1880, Howell Bros.” No. 200 ; also a fifth collection by Suksdorf, no. 349, “Plains, southwest of Morgan's Ferry, Yakima Co., Wash., June 7, 1884.” This last specimen is the basis for the note in Syn. Fl. Supp. I., 447, 1886. It is clearly a different plant from the others, but agrees exactly with several later collections. A careful study of DeCandolle's description of *Chrysopsis hirtella*, Prodr. 5: 327, leaves scarcely a doubt that the Douglas plant from the Columbia River there described is the same as the Suksdorf plant. This is discussed below. Of true *Erigeron Chrysopsidis*, Gray, excellent specimens have recently been distributed by Mr. *W. C. Cusick* under no. 2187, from the Blue Mts., Oregon. These specimens have leaves sometimes 8–10 cm. long, but always truly spatulate. The heads of this species are 2–3 cm. high, the rays 2 cm. long.

***Erigeron Chrysopsidis brevifolius* var. nov.**

Densely caespitose, bearing scapes 4–6 cm. high : leaves 1–1.5 cm. long : heads 2 cm. high, the rays 1.5 cm. long, golden yellow.

Subalpine ridges of the Wallowa Mts., northeastern Oregon, 7000 ft. altitude, *W. C. Cusick*, no. 2270, July 27, 1899. Differs from the type in being smaller in every way and having relatively much shorter leaves.

***Erigeron curvifolius* n. n.**

*Chrysopsis hirtella* DC. Prodr. 5: 327. 1836.

Perennial with several or numerous branches from a woody caudex, 5–10 cm. high: root straight, simple: leaves not densely crowded, linear, entire, acute, sessile, more or less curved, 1.5–3 cm. long, 1–2 mm. wide, hirtellous with white hairs, the midrib broadened and whitish toward the base: flowering stems numerous, slender, appressed hirsute, scarcely exceeding the leaves, monocephalous, or rarely with a second smaller head: heads about 1 cm. high: involucre of 25–30 linear acuminate hispidulous bracts, all at length reflexed: rays 30–40, pale yellow, linear, 1 cm. long: achenes appressed hirsutulous; outer pappus of very short setae; inner nearly equaling the floret, which with the akene is 4 mm. long: receptacle with the alveoli wanting or very obscure, minute setae appearing in their places especially near the margin.

Readily distinguished from *E. Chrysopsidis* Gray by the much smaller heads and florets, very different leaves and by the receptacle not being alveolate.

It is a plant of the dry sandy plains of the Columbia and its habitat taken in connection with the linear leaves and peculiar receptacle renders it nearly certain that this plant, and not the subalpine *Erigeron Chrysopsidis* Gray, is the *Chrysopsis hirtella* of De Candolle.

The following specimens, all from Washington, have been seen viz.: Morgan's Ferry, Yakima Co., *Suksdorf*, June 7, 1884; Washtucna, *Elmer*, no. 1036, June, 1898; Pasco, *Hindshaw*, May 25, 1896; Pasco, *Piper*, no. 2993, May 25, 1899; Connell, *A. B. Leckenby*, June 18, 1897.

***Pentstemon Gairdneri hians* var. nov.**

Shrubby and decumbent below, the flowering shoots erect or nearly so, 2–3 dm. high, cinereous puberulent, or above glandular: leaves rather numerous, alternate, linear or linear-spatulate, sessile, acutish, revolute, more or less curved, ascending, 2–3 cm. long, 2 mm. wide: flowers 10–20, racemose or somewhat paniculate, rather strict; bracts lanceolate, acuminate, about 1 cm. long: calyx 1 cm. long, the lobes ovate, acuminate, subequal, free quite to the base, not equaling the corolla tube: corolla red, minutely glandular, 2.5 cm. long, tubular-funnelform, broadly dilated in the naked throat, bilabiate, the prominent lobes broadly rounded, sub-

equal, widely spreading : stamens included in the tube of the corolla, the sterile filament pilose for the upper third ; anther cells dehiscent the whole length and explanate : style about equal to the stamens, slightly exceeding the calyx lobes.

EASTERN WASHINGTON : *G. R. Vasey*, no. 432 in 1889 (type). Ellensburg, *Piper*, no. 2702. Wenatchee, *Whited*, no. 36. Tampico, *Flett*, nos. 1184 and 1187.

The original specimens of *Pentstemon Gairdneri* were collected in the Blue Mts., Oregon, by Douglas, and the species is well represented by *Cusick's* no. 1637, from that region. The variety is the commoner form in central Washington and is readily distinguished by its larger corolla with spreading limb and larger calyx lobes. Intergrading forms are not rare.

***Pentstemon confertus globosus* var. nov.**

Erect, 2–3 dm. high, perfectly glabrous throughout, pale green : radical leaves oblong, acute, entire, 6–10 cm. long, attenuate into a petiole 1–2 cm. long ; cauline leaves 3 or 4 pairs, the lower pair usually short-petioled, the others sessile, all similar to the radical but becoming broader upwards, the uppermost commonly ovate : inflorescence a dense head-like panicle of many short-pedicelled flowers, rarely with a second verticillate cluster below : calyx lobes nearly distinct, ovate-acuminate, narrowly scarious-margined, entire or obscurely dentate, nearly one half as long as the corolla : corolla intense blue, nearly 2 cm. long, tubular, bilabiate, the lower lip sparsely villous within, the lobes rounded, entire, subequal, one fourth as long as the tube : stamens included, the sterile bearded above the middle : anthers splitting their entire length but not explanate, the cleft ciliate margined.

Wallowa Mts., northeastern Oregon, altitude 6000–7000 ft., *W. C. Cusick*, no. 2328, Sept. 1, 1899.

Strikingly different from *P. confertus* Dougl. or any of the numerous forms of var. *coeruleo-purpureus* Gray, but lacking any distinct morphological characters. Except for the perfectly glabrous inflorescence, it would be referred rather to *P. attenuatus* Dougl., its flowers being fully as large as in that plant.

***Pentstemon Newberryi rupicola* var. nov.**

A much-branched densely caespitose decumbent shrub, 5–8 cm. high, pilose-puberulent below, the inflorescence glandular-viscid : leaves numerous, opposite, ovate or orbicular, more or less dentate, obtuse, glaucous, with a persistent bloom, thick, not turn-

ing black in drying, .5–1 cm. long, attenuate at base into a short petiole: flowers 3–6 in a rather close corymb: bracts of the peduncles ovate or orbicular, entire, obtuse, retuse or acute, about 4 pairs: calyx lobes distinct, equal, ovate, acute, ciliate, glandular, about 7 mm. long: corolla 3 cm. long, bright rose crimson, naked in the throat, decidedly ventricose, somewhat bilabiate, the lobes oblong, obtuse, rather short: fertile anthers barely extruded, white-woolly: sterile filament short, glabrous.

Dry rocky cliffs, Mt. Rainier, 7500 ft. alt., *Piper*, no. 2086 (type); Goat Mts., Wash., 3000–6000 ft. alt., *Allen*, no. 130.

This plant is very different from *P. Newberryi* Gray in its depressed habit, thicker leaves and larger ventricose corolla. I should not hesitate to call it a species were it not for the fact that on Mt. Adams occurs a very similar plant, but with the tubular corolla of *P. Newberryi*, and thus forming a transition to it.

***Castilleia rustica* sp. nov.**

Stems erect, apparently from a decumbent woody base, simple, or more commonly with erect branches, minutely white pubescent throughout and somewhat glandular above: leaves narrowly lanceolate, rather few, sessile, mostly entire: bracts 3–5-cleft, only the lower exceeding the flowers, greenish: spike dense, 2–8 cm. long: calyx 10 mm. long, short-villous, equally cleft before and behind, the segments somewhat shorter than the tube, each divided half way into similar triangular acuminate teeth: corolla greenish-yellow, 15 mm. long, glandular-puberulent above, the blunt galea more than half as long as the tube; lower lip very small, one-fourth as long as the galea, saccately 3-lobed, the free portions acute, one third as long as the saccate enlargements: stigma capitate, protruding: stamens included.

Rocks of the Wallowa River, northeastern Oregon, 6000 ft. alt., *W. C. Cusick*, collected August 7, 1899. A homely species with some affinity to *C. Lemmoni* Gray.

***Castilleia rubida* sp. nov.**

Decumbent, 2–10 cm. high, the numerous simple stems from a stout woody caudex which is continued into a long tap-root: stems and leaves pubescent with short white crisp hairs and also minutely and densely glandular, especially in the inflorescence: leaves sessile, linear or lanceolate, entire or more frequently 3-cleft or 3-parted, 1–2 cm. long; bracts similar to the upper leaves, 3–7-cleft, mostly tinged with dull purple: flowers in a short dense



spike: calyx tubular, more or less villous, 1 cm. long, equally cleft before and behind, the segments one half as long as the tube, each again deeply cleft so that the four triangular acuminate calyx-lobes are subequal: corolla greenish except the margins of the galea and the lower lip which are dull purplish, tubular, minutely glandular, 12 mm. long, the blunt galea only one third the length of the tube, slightly exceeding the saccately 3-lobed lip, the free portions of which are oblong, obtuse, and slightly longer than the ventricosities, each of which bears two smaller swellings on its summit: anthers orange-yellow, slightly extruded: stigma capitate, 2-lobed, extending beyond the galea.

Wallowa Mts., northeastern Oregon, 9000 ft. alt., *W. C. Cusick*, no. 2094, collected August 23, 1898, and again July 28, 1899. The 1898 plant was distributed as "*Castilleia Lemmoni* Gray?" to which the new species has some relation. The calyx and corolla are, however, very different.

***Castilleia angustifolia* Whitedii** var. nov.

Stems clustered on a woody caudex, erect, 2-3 cm. high: leaves all entire, lanceolate, 2-3 cm. long; bracts broader than the leaves, the uppermost 3-lobed; otherwise as in the type.

Wenatchea, Wash., Kirk Whited, no. 1141, collected June 11, 1899. Particularly interesting as being markedly different from all its immediate allies in having entire leaves.

***Salix bella*** sp. nov.

Shrub 2-4 meters high with slender erect stems, the bark gray and smooth: branches erect or little spreading; branchlets shining, yellow, very brittle, glabrous or sometimes puberulent, slightly glaucescent: leaves lanceolate or oblong, or oblong-obovate, mostly acute, 3-6 cm. long, or on vigorous young shoots even 12 cm. long, about one fourth as wide, above green and sparsely appressed puberulent, beneath velvety with a persistent silvery tomentum, entire or obscurely repand-crenulate; midrib yellow, conspicuous, bearing about 15 pairs of primary veins, stipules commonly present, free, lunate, acute, .5 cm. long or less: aments sessile, appearing before the leaves, or the pistillate sometimes on a very short peduncle that bears 2 or 3 small leaves: pistillate aments stout, oblong, 2-3 cm. long, or in fruit 4-6 cm., densely flowered; scales black, persistent, oblong, obtuse, 1.5 mm. long, villous with white hairs twice as long; capsules narrowly and somewhat angularly pyriform, attenuate, acute, grayish-sericeous,

6-7 mm. long, including the style : style 1.5 mm. long : stigmas thick, glandular, broad, entire or two-lobed or cleft ; pedicel 1-2 mm. long : nectary small, one half as long as the pedicel : staminate aments 1-2 cm. long, densely flowered ; scales black, ovate, usually acute, persistent, 2 mm. long, densely villous with long tawny hairs : stamens 2, usually unequal, twice as long as the scale : filaments free : anthers yellow : nectary small, about one fourth as long as the scale.

First detected near Garrison, Whitman Co., Wash., by Prof. L. F. Henderson. In this place only a dozen or more plants occur, but the species is abundant along the north fork of the Palouse between Colfax and Palouse, Wash., and along the Potlatch River near Collins, Idaho ; also at Jansville, Idaho.

This species is one of the obscure *Salix pellita* group and apparently the only one of which complete material has been collected. Its relationship is with *S. candida*.

From *S. pellita* and at least so far as the Lyall type specimen is concerned, *S. bella* differs in these important particulars : the pistillate aments are sessile or nearly so ; the capsule is smaller and more sericeous ; the scale is black, obtuse, long villous instead of brown, acute, and sparsely pilose ; and the stipules are well developed. The leaves too are quite different.

#### ***Salix subcoerulea* sp. nov.**

Shrub about 2 meters high : branchlets dark, glabrous, bluish with a bloom that easily rubs off : leaves oblong-lanceolate, occasionally oblanceolate, acuminate, acute at base, entire or obscurely crenulate, above green and minutely pubescent, beneath silvery appressed pubescent but scarcely tomentose, 2-5 cm. long, 1 cm. wide ; pedicels short, about .5 cm. long : stipules obsolete : pistillate aments appearing with the leaves, pedunculate, usually with one or more small leaves at base, 2.5-4 cm. long, less than 1 cm. thick, erect, straight or cernuous : capsules short-pedicelled, pyriform, silvery sericeous, 2-3 mm. long, tipped with a slender yellow style 1 mm. long : stigmas thick, usually 2-lobed : scales black, ovate, obtuse, about 1 mm. long, sparsely pilose, with white hairs of the same length : pedicel about 1 mm. long, twice as long as the nectary : staminate aments unknown.

OREGON : Powder River Mts., in wet meadows near the head of Eagle Creek, *Cusick*, no. 1302, *Piper*, no. 2533 : also near the head of Anthony Creek, *Cusick*.

CALIFORNIA: Donner Pass, *Torrey*, no. 489, in 1865. Near Mineral Spring, Sierra Nevada, *Coville* and *Funston*, no. 1427.

These California specimens are imperfect and are somewhat doubtfully referred to the species here described.

Evidently related to the above, but with nearly the foliage of *Salix macrocarpa* Nutt.: it differs from *S. bella* further in having pedunculate pistillate aments, smaller capsules, with the scales short-villous, and no stipules: from *S. pellita* the capsules and scales, as well as the foliage clearly separate it.